WE CLAIM:

1. A method for time aligning first and second signals, comprising:

modulating said second signal by said first signal to provide a third signal; and

determining frequency components of said third signal, said frequency components being indicative of time alignment between said first and second signals.

2. The method according to Claim 1, wherein said first signal comprises a data signal in which data is encoded in a Non-Return-to-Zero signal format, said second signal comprises a Return-to-Zero pulse signal, and said third signal comprises a data signal in which said data is encoded in a Return-to-Zero signal format.

3. The method according to Claim 2, wherein said first signal comprises a signal in which data is encoded in a binary data pattern "1010...", wherein said second signal comprises a series of Return-to-Zero pulses having a frequency equal to a data interval of said first signal, and wherein said step of determining frequency components of said third signal comprises determining relative strengths of the frequency components of said third signal.

4. The method according to Claim 3, wherein said step of determining relative strengths of the frequency components of said third signal comprises:

filtering said third signal to provide a filtered signal; and

detecting a level of said filtered signal, said level being indicative of time alignment between said first and second signal.

5. The method according to Claim 4, wherein said step of detecting a level of said filtered signal comprises:

converting said filtered signal to a DC voltage signal; and

measuring a voltage level of said DC voltage signal.

6. The method according to Claim 4, wherein said step of filtering said third signal comprises:

filtering said third signal while sweeping said second signal through a time delay range; and

wherein said step of detecting a level of said filtered signal comprises:

first detecting when a said filtered signal is at a minimum level during said sweeping, said minimum level occurring at a first time delay value;

second detecting when said filtered signal is next at said minimum level during said sweeping, said next minimum level occurring at a second time delay value; and

setting a time delay value for said second signal at a time delay value exactly between said first and second time delay values.

7. The method according to Claim 6, wherein said first and second detecting steps comprise converting said filtered signal to a DC voltage signal, and detecting the voltage level of said DC voltage signal during said sweeping.

8. The method according to Claim 1, wherein said first signal and said second signal are in correct time alignment when a fundamental frequency of said third signal equals one-half the frequency of said second signal.

9. The method according to Claim 4, wherein said step of filtering comprises filtering said third signal with a low pass filter.

10. The method according to Claim 1, wherein said first and second signals comprise optical signals.

11. An apparatus for time aligning first and second signals, comprising:

a modulator for modulating a second signal with a first signal to provide a third signal; and

a detector for detecting a fundamental frequency of the third signal, the fundamental frequency being indicative of time alignment between said first and second signals.

12. The apparatus according to Claim 11, wherein said first signal comprises a Non-Return-to-Zero data test signal and said second signal comprises a Return-to-Zero pulse signal, and wherein said apparatus further includes a data generator for generating said first signal and a pulse generator for generating said second signal.

13. The apparatus according to Claim 12, wherein said apparatus further includes a clock, and an apparatus for controlling a time delay of said clock for varying timing between said first and second signals.

14. The apparatus according to Claim 11, wherein said apparatus further includes a filter for filtering said third signal; and

means for measuring a level of said filtered signal, said level being indicative of said time alignment between said first and second signals.

15. The apparatus according to Claim 14, wherein said measuring means comprises:

a detector for converting said filtered signal to a DC voltage signal, and a voltage measuring device for measuring a level of said DC voltage.

16. The apparatus according to Claim 15, wherein said detector comprises an RF detector.

17. A method for converting a first data signal in which data is encoded in a first signal format to a second data signal in which the data is encoded in a second signal format, comprising:

modulating said first signal with a pulse signal in said second signal format to provide said second data signal;

measuring a strength of a fundamental frequency of said second data signal at different timings between said first signal and said pulse signal, said strength being indicative of a time alignment between said first data signal and said pulse signal; and

adjusting a timing between said first data signal and said pulse signal in response to said measured fundamental frequency for correctly time aligning said first data signal and said pulse signal.

18. The method according to Claim 17, wherein said first signal comprises a Non-Return-to-Zero data signal, said pulse signal comprises a Return-to-Zero pulse signal, and said second signal comprises a Return-to-Zero data signal.

19. The method according to Claim 17, wherein said step of measuring a strength of the fundamental frequency of said third signal comprises filtering said third signal to provide a filtered signal, and measuring the strength of said filtered signal.

20. The method according to Claim 19, wherein said step of measuring the strength of said filtered signal comprises converting said filtered signal to a DC voltage signal and measuring a level of said DC voltage signal.